Saving with group or individual personal pension schemes: How much difference does it make?

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Abstract

The quality of services provided by institutional investors has attracted considerable attention. This paper adds to the debate by showing that institutional differences in setting up define contribution personal schemes have an economically and statistically significant impact on the returns. Using a sample of 10,326 UK defined contribution personal pension funds over July 1990 – June 2019, I show that pension funds that have a third party involved in contract setting and subsequent oversight deliver 0.96–1.67% higher gross returns and charge 0.7% lower fees than pension funds offered directly to the public without any third, well–informed party involved. I also show that the introduction of additional governance bodies in 2015 resulted in widening the performance gap which further supports the notion that investment governance has a material impact on fund performance. The results highlight the importance of investment oversight and call for more protection for individual investors.

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1. Introduction

The pension assets of the OECD counties, accumulated through pension funds, pension insurance contracts and other pension servicing vehicles, amounted to $42.5 trillion at the end of 2018. Given that more than half of this money is in defined contribution (DC) schemes and that DC schemes are growing at almost twice the rate of defined benefit (DB) schemes (8.9% per annum compared to 4.6%)[2], it is inevitable that DC schemes will become the dominant form of pension provision in the coming years. Since DC pensions will be the main source of old age provision for millions of people around the world, the question of the quality of DC pension services becomes a crucial concern. Furthermore, ensuring the appropriate quality of DC services is additionally important because typically DC contributors have low levels of financial literacy, and poor monitoring skills and abilities.

In this paper, using a sample of 10,326 UK DC personal pension funds over July 1990 – June 2019, I assess whether funds offered to investors in group personal pension (GPP) schemes perform better than funds offered to investors in individual personal pension (IPP) schemes.[3] The GPP and the IPP agreements are both between individual contributors and providers, and offer seemingly similar services, but GPPs are only available to employees of the company who set the agreement with a particular provider, while IPPs are available to the general public, and as such the individuals are free to choose from any provider offering IPP schemes.[4] When a company is dissatisfied with the level of services provided and decides to change the pension provider, this can carry considerable reputational and financial loss to the provider, which may put extra pressure on the providers to deliver good returns. In contrast, IPP investors, like any other body of small and dispersed investors, have low bargaining and monitoring abilities and face high charges if they wish to swap pension providers. Thus, although there are no reasons to believe that the individuals saving under GPP schemes are any more financially savvy, better at monitoring, etc. than the IPP investors, the involvement of employers in contract setting

[2] According to Willis Towers Watson (2019), in the period 2008 – 2018 the annual growth rate of DC schemes in 7 major world economies (i.e. the U.S., the UK, Switzerland, the Netherlands, Japan, Canada and Australia) was 8.9% as compared to 4.6% for the DB schemes.

[3] In the UK, there are two types of supplementary (in addition to the state) pension schemes: occupational and personal. Occupational pensions are set up by employers and the contracts are between the employer and the provider. Personal pensions are individual contracts with pension providers. The UK personal pensions amount to £3 trillion assets under management and 27.4 million contributors in 2017 – 2018 (OECD, 2018).

[4] http://www.thepensionsregulator.gov.uk/docs/employer-management-committees.pdf

and subsequent monitoring creates a positive externality that may be beneficial to the GPP investors in the sense that GPPs outperform IPPs. I find strong evidence that this is the case.

Specifically, I study three types of funds: (i) funds specializing in UK equity, (ii) funds specializing in global equity and (iii) funds specializing in mixed investments of equity and fixed income securities that enable a high proportion of assets under management to be invested in equity. These investment styles cover nearly 40% of funds available on the market. The comparison of the performance alphas estimated for a range of risk factor models (CAPM, Fama–French Three Factor Model with Momentum and Fama–French Five Factor Model) for gross monthly returns shows that there is consistent evidence that GPPs outperform IPPs by more than 1 percent per annum, and that these differences in the performance cannot be attributed to provider selection bias, i.e. unobserved, provider specific characteristics that are correlated with the services they offer. Assessing the benchmark relative performance and the performance of funds with the same benchmarks (using a manually constructed, unique data set), I also show that the performance differences cannot be explained by differences in investment focus of funds. Moreover, I show that the difference in the performance between GPPs and IPPs increased following the governance reform of 2015 that was designed to improve governance and monitoring oversight of GPPs but not of IPPs. The change in the performance was bigger for smaller providers and funds, which is consistent with the notion that smaller employers were poorer monitors (OFT 2013). In addition, I also document that the IPP investors pay statistically significantly higher fees than the GPP investors. Thus, the observed differences in the performance are further magnified by the differences in the fees paid.

According to my knowledge, this is the first study that analyzes and documents differences in performance between two groups of seemingly similar pension schemes, but which differ by having, or not having, a third party involved in setting them up and monitoring. I show that the differences are statistically significant and economically material. This is also the first study that provides an assessment of the regulatory changes that were designed to improve governance and monitoring of GPPs. The study confirms the 'common knowledge' widely reported by the UK regulators and press that IPP investors pay high fees, but it also shows that the IPP fees are higher than those paid by GPP

investors, and most importantly, it is shown, for the first time, that the difference in the performance exceeds the difference in fees.

Given both the current size and growth of DC pensions around the world, any discriminatory practices within the DC pension industry could impact significantly on the retirement income of millions of investors. Pension savings, even if not compulsory, are strongly encouraged (by governments and international agencies), are long–term in nature, and have long–term financial and social implications. In addition, they are even more important for low–income investors, which typically also means less financially savvy, than they are for high income, more financially savvy ones. Identifying whether DC pension funds discriminate between investors by providing different investment opportunities to similar investors according to whether, or not, an 'informed' third party is involved in setting up and subsequent monitoring of pension funds is of vital importance.

The paper adds to several strands of the literature. First, the literature on the role of employers in supporting pension schemes. While many papers are critical about the quality of pension services and investments offered through employer supported schemes (e.g. Elton et al. 2006, Rauh 2006, Benartzi et al. 2007, Farrell and Shoag 2016), this paper implies that employers' involvement, even if it is only in the form of a 'third party' is better than its absence. It also adds to the literature on the importance of financial advice for not–so–financially savvy individuals (e.g. Allen and Gale 1999, Bhattacharya et al. 2012; Inderst and Ottaviani 2012, von Gaudecker 2015, Guiso and Viviano 2015, Foerster et al. 2017, Bianchi 2018, Dahlquist et al. 2018) by documenting better performance of funds selected by employers (i.e. a third, well–informed party) than those available to the public. It adds to the literature on fund performance by exposing wealth managers' weak performance when monitoring pressure is low (e.g. Almazan et al. 2004, James and Karceski 2006, Adams et al. 2018). It also contributes to the regulatory literature on the effectiveness of different saving schemes (e.g. Poterba et al. 1995, Choi et al. 2002, Lindbeck and Persson 2003, Carroll et al. 2009, Looney and Hardin 2009, Beshears et al. 2015, Ahmed et al. 2018, Boes and Siegman 2018), and to the literature on the importance of trust for market participation (El–Alttar and Poschke 2011, Ballock et al. 2015). Finally, it contributes to the literature that documents the importance of relational contracts for the provision of financial services (Jiménez et al. 2011, Belavina and Girotra 2012, Benczúr and Iluti 2016) and

discriminatory practices of financial intermediaries (e.g. Cavalluzzo et al. 2002, Houge and Wellman 2007, Gil–Bazo and Ruiz–Verdú 2009, Beck and Brown 2015, Palia 2016, Pool et al. 2016, Agarwal et al. 2017, Egan et al. 2019, Karolyi 2018).

The paper has far–reaching policy implications as its results indicate that empowering individual investors may not be enough to increase the efficiency of financial intermediaries. Individual investors may need much more protection from regulatory bodies than they currently have, to ensure that they receive good returns on their savings. It also adds to the ongoing debate on the role and importance of boards of trustees/fiduciaries in monitoring pension schemes' performance (OFT 2013, FCA, 2017, CMA 2018), and signals that the debate on the poor quality of the UK pension system might be ill–focused. The popular press and pension activists discuss at length the high fees charged by IPPs. This research shows that while the fees are indeed high, the performance of IPPs is much worse that the performance of GPP funds, and the losses created by this underperformance are larger than the differences in fees between the two types of schemes. Although, the paper is concerned with the UK DC pension schemes, it provides valuable insight for all countries with DC pension provision.

2. Institutional background and hypotheses

2.1 Schemes and reform milestones

The UK 1986 Social Security Act established personal pensions (GPP and IPP) as the primary form of non–occupational DC pension provision by insurance companies, friendly societies, and banks. Currently, the majority of personal schemes are provided by large insurance companies (e.g. Aegon, Aviva, Friends Life, Legal and General, Prudential, Scottish Life, Scottish Widows, Standard Life, and Zurich, etc.), and a number of non–insurance companies, such as BlackRock, Fidelity, and HSBC.

IPPs are offered directly to individual members of the public and, at the time of signing an agreement the individual is usually free to choose from all the IPP funds offered by IPP providers. In contrast, under GPP schemes employers facilitate an agreement with one or more financial institutions to provide personal pensions to their employees. As such, GPP schemes are organized by employers even though, the legal contract exists only between the financial institution that is to provide the pension

and the individual employee who signs the contract. Typically, GPP members can only choose from an agreed range of funds and may be offered default options if they do not wish to display preferences.

When a company wishes to offer a GPP scheme to employees, they typically approach a consultant (known as an Employee Benefit Consultant) who checks with a range of providers who would be willing to offer their services.[5] When the scheme is created, it is common for an employer to establish a governance group, also known as fiduciary group. A governance group is expected to conduct periodic reviews of the performance of the scheme, and then consider amendments (e.g. changes to the pool of funds on offer) or even seek a new pension provider.

Even though many employers have created governance groups, the oversight of GPP schemes has not been as diligent as the governments and regulators wished.[6] To improve the quality of governance investment practices of workplace pensions (of which GPPs are part) an Investment Governance Group (IGG), as part of the Treasury, was created in 2008. The IGG recommended that employers should improve their oversight of DC pension arrangements and clearly allocate investment governance responsibilities, but the policy failed to bring about any material changes.[7] To improve GPP schemes' transparency and market competition, the Financial Conduct Authority (FCA 2015) introduced the requirement that all providers who offer GPPs had to have their own Independent Governance Committees (IGCs) whose role is to scrutinize the value for money of the provider's GPP schemes.[8] Independence is meant to be a key feature of IGCs. An IGC must contain at least five directors, at least half of whom must be independent, including an independent chair. However, given that IGC directors are chosen and paid by providers, numerous voices have been raised regarding the true independence of IGC directors.[9] Further problems with market competition, fiduciary management,

[5] In some cases, the advice will be provided by banks, accountancy firms and legal advisers (OFT, 2013).
[6] Towers Watson (2012) reports that 86% of employers with GPPs had a governance group, and these groups had a good mix of skills (69% of the governance groups had a pension department representative, 44% had a finance specialist and 53% had a scheme member representative). Yet, it concluded that fiduciaries of GPP schemes assume that "any risks should be borne/mitigated solely by the members and the pension provider".
[7] The IGG's (2010) report states that "many respondents (or their representative associations) insisted that this duty on employers [increased engagement in DC schemes' governance] was not practical and could lead to many employers transferring members into the government-sponsored National Employment Savings Trust (NEST)". NEST was a new government supported pension scheme that was under creation and started to operate in 2013.
[8] In the case of smaller and less complex schemes a Governance Advisory Arrangement (GAA) with a third party can be created instead of an IGC. A GAA may be a cheaper solution but has the same duties and responsibilities of monitoring and challenging providers.
[9] E.g. https://henrytapper.com/2020/04/11/is-fidelitys-igc-papering-over-the-cracks/

insufficient governance and engagement were also documented in reports of FCA (FCA 2016, 2017) and of the Competition and Markets Authority (CMA 2018). According to Wills Towers Watson's (2018) only 25% of the surveyed investors were positive about the governance oversight provided by IGCs. A review of the effectiveness of IGCs was scheduled for 2019–2020 but is yet to happen.

While numerous authorities have been concerned with the quality of the services provided by GPPs and their investment governance, significantly less attention has been focused on IPPs. The Financial Services Authority's report of 2008 (FSA 2008) is one of a very few publicly available reports assessing IPP schemes and this presents a rather gloomy picture.[10] It states that in 40% of the investigated cases "the fund(s) recommended were not suitable to the customer's attitude to risk and personal circumstances", and that there were cases of investors receiving misleading information. The report mentions cases "where providers used the standard 5%, 7% and 9% rates of return to project for cash funds."[11] Despite these shortcomings, no regulatory changes, or even recommendations, have taken place. Thus, while the regulators keep addressing investment governance standards of GPPs, IPP savers can only rely on their own wits and expertise.

2.2 Switches, transfers and fees

There are no reports that explicitly compare the conditions of switching providers, transferring money within providers, or exit and management fees for GPPs and IPPs. However, what evidence exists, it points in the direction of GPP investors being in a more privileged position than IPP ones. Even though, GPP investors are restricted to investing with the providers chosen by their employer, when the employer decides to switch providers this does not bear any additional costs to employees. In contrast, switching a provider is expensive for IPP investors. FSA's (2008) report on IPP funds states that in 79% of investigated cases "the switch involved extra product costs without good reason."

[10] The report jointly discusses IPP schemes and self–invested personal pensions.
[11] The annualized average monthly T–bill rate in 2006 was 4.7% (varied between 4.4% and 5.1%), in 2007 it was 5.6% (varied between 5.3% and 5.8%), and in 2008 it was 4.3% (varied between 1.2% and 5.1%).

The Pension Commission (2004) reports that at least 75% of the explicit cost of providing an IPP pension was a fixed cost incurred upfront in the selling process.[12] Thus, it is common for IPP investors to stop contributing rather than moving money around. Smith (2004) documents that one in eight people stopped contributing after one year. According to The Telegraph "policies established in the Eighties and Nineties frequently contained small print that meant up to 40pc of their value could be swallowed in penalties if they were cashed in or transferred before a specified age, normally 55 or 60".[13]

There also is a dearth of information about management fees and charges. OFT (2013) reports a lack of transparency regarding fees paid by employees and even though, since 2001, numerous fees started to be bundled under one figure known as annual management charges (AMCs), there was no consistency across the industry in what AMCs consisted of. The comparison of the fees charged by pension schemes is practically impossible before 2012, as it was only in July 2012 that the unified reporting standards were introduced following the adoption of the EU regulation known as the Key Investor Information Document (KIID).

The Department for Work and Pensions (DWP 2014) reports that the average AMC of GPP schemes was 0.84%, with small schemes' members (12 to 99 employees) paying on average 0.91% and big schemes' members (over 1,000 employees) paying 0.51%.[14] There are no official statistics reporting fees charged to individual investors of IPP schemes, but if they are treated as one–person companies, a simple extrapolation of GPP fees would suggest that individuals saving with IPPs were likely to pay well over 1% of AMCs. Individual cases of abnormally high fees paid by IPP investors are often discussed in the press.[15] In Section 6, I provide data and discuss fee comparisons between IPPs and GPPs for 2018.

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[12] For years providers faced no regulatory restrictions on charges or penalties they could impose and had full flexibility in determining the level of minimum contribution. In April 2017, the FCA introduced a cap on early exit pension charges for some workplace pensions (including GPPs).

[13] The Guardian quotes the Pensions Regulator's report (currently not publicly available) stating that some small provider's exit charge was 24% (https://www.theguardian.com/money/2016/nov/15/pension-exit-fees-capped-over-55s); Financial Times reports that exit fees can reach 30% but typically range between 2-5% https://www.ft.com/content/8be25560-f46d-11e6-8758-6876151821a6; The Telegraph reports than on average exit penalties for individuals below 55 years of age are 10%.

[14] These fees are much higher than those reported by Pitt-Watson and Mann (2012) for the Dutch pensions where the average fee of the collective pensions was 0.15%, and of the individual contract schemes was 1.27%.

[15] E.g. The Telegraph, "Rip-off pension charges: how much am I paying?" https://www.telegraph.co.uk/finance/personalfinance/pensions/9408312/Rip-off-pension-charges-how-much-am-I-paying.html

3. Hypothesis statement

The existing literature documents that investment performance is strongly related to financial skills (e.g. Lakonishok and Maberly 1990, Dorn and Huberman 2005, Barber and Odean 2008). Thus, the accepted view is that individuals, having poor financial skills (e.g. Bernheim 1995, 1998, Lusardi and Mitchell 2006, 2014, Agarwal and Mazumder 2013) are better off when they seek the advice and services of wealth managers rather than invest by themselves (Allen and Gale 1999, von Gaudecker 2015, Gennaioli et al. 2015, Guiso and Viviano 2015). Therefore, it should not make any difference whether individuals invest with GPP schemes or with IPP schemes given that both types of schemes are offered and serviced by professional asset management companies. Moreover, if financial literacy matters for investment success, IPPs might perform better than GPPs because the average IPP investor may be more financial aware and skilled than the average GPP investor. This is because, an investors' decision to start saving for retirement is typically associated with higher personal wealth and requires an ability to engage in the choice of provider and scheme. In contrast, employees of a company are offered a GPP scheme, and the investment details are simplified through the restricted choice on offer.

The above provides an argument suggesting that IPPs may perform somewhat better than GPPs. The counter argument, however, is that because GPPs have well–informed third parties involved in setting them up and subsequent oversight, whereas IPPs do not, GPPs should perform better than IPPs. I test this hypothesis.

Following on from this hypothesis, if better performance of GGPs relative to IPPs is indeed the result of institutional differences, then it is important to eliminate other potential drivers of performance differences, i.e. it should be the case that performance differences persist when various fund and provider characteristics are controlled for.

For example, if differences in performance between GPPs and IPPs are simply the result of economies of scale, then controlling for size would explain the differences in performance, so it needs to be shown this is not the case. In addition, if the differences in performance are related to unobserved provider specific factors, which may happen to be correlated with the services they offer, the performance differences could also be attributed to these factors. To ensure such selection bias is not driving the results, the differences in the performance between GPPs and IPPs should be shown to

persist once the sample is restricted to those funds whose providers offer both types of schemes (this is because the provider specific factors would be common for the provider's services).[16]

To further test whether the difference in the performance of GPPs and IPPs is related to the institutional setting, I test how the difference in the performance of GPPs and IPPs changed after the introduction of IGCs. The introduction of IGCs for GPPs should increase the performance gap between GPPs and IPPs even if the critics of IGCs are correct in questioning the extent of the IGCs' independence.[17] Moreover, the increase in the performance gap should be larger for smaller employers who are known to be less engaged in GPP oversight than larger employers (OFT, 2013). The identity of employers is not observable, but it is likely that employers' size is positively correlated with the size of pension schemes, and that big employers use big, well–known pension providers to service their GPPs. Thus, the size of pension providers and/or of GPPs can act as a proxy for the quality of monitoring prior to the reform and negatively covary with the impact of the introduction of IGSs on the performance gap between GPPs and IPPs.

Finally, there is the possibility that some unobservable relationship between funds and their benchmarks could be driving the results, e.g. different benchmarks could be a sign of different investment objectives which in turn impact on performance. To test that this is not the case, the difference in the performance between IPPs and GPPs should persist for funds with the same benchmarks.

4. Data and methodology

4.1. Funds data

Morningstar Direct lists 1,965 GPP funds that opened between January 1968 and June 2016, and 17,114 IPP funds that opened between January 1963 and June 2016. Of these funds 879 GPPs and 9,447 were identified as primary asset class funds. For these funds their gross monthly returns, the date of inception, the name of provider, net assets, size of the funds as surveyed, investment style as specified

[16] Egan et al. (2019) show such a 'specialization' effect of financial advisors in providing different quality services.
[17] However, if the increase in the gap is not observed, it does not imply that better monitoring does not result in better performance. It may indicate that the IGCs have not fulfilled their role to enhance monitoring.

by the Association of British Investors' Pension Classification (ABI PC) investment style (ABI, 2017) and as specified by the Global Broad Category Group (GBCG), the Primary Prospectus Benchmark (PPB), and a short description of the investment strategy were collected.[18] Funds' monthly returns were collected from July 1990 until June 2019 to give at least three years of the monthly performance data per fund. The choice of the starting date of the returns was dictated by the availability of the Fama–French factors (see Section 4.2 for details). The funds' size data were collected from January 2007, the first available date.

An ABI PC classification was available for many funds. Where it was missing, the 'soft' information about 'Investment Strategy–English' provided by Morningstar Direct and GBCG classification were used to allocate funds to one of the 35 ABI PC investment styles. In this way, missing investment styles were assigned to 145 funds leaving 781 funds without the investment style classification. Given that many ABI investment styles would not contain enough funds to be suitable for analysis, ABI investment styles were grouped according to the funds' asset classes and geographical investment focus. The groupings are referred to as investment styles. For instance, the UK equity investment style was created out of UK All Companies, UK Smaller Companies and UK Equity Income, the Mixed High equity was made up of two Mixed sub–investment styles that allow for a high proportion of equity in funds' portfolios, etc. Details of the creation of the investment styles are provided in Appendix 1 (this and all the other Appendixes are available online).

Table 1 shows that equity investments dominate among pension funds. 'Pure' equity funds account for 44.1% of GPPs and 44.6% of IPPs. If the Mixed High equity funds are added, the corresponding shares increase to 52.2% and 56.6% respectively. These proportions would be higher still, if equity investments of the Specialist funds were included, as these funds are likely to have high proportions of equity investments.

Assessing the size of the individual investment styles creates some issues. First, the size of funds (both net assets and surveyed values) has many missing observations. In the last quarter of 2007, only 19 GPPs (or just 5.4% that existed at that time) and 654 (or 14.1%) of IPPs provided information

[18] There is no information about returns on funds that have stopped operating. Thus, they are excluded from the analysis. This should not create a survivorship bias, as these funds account for just 3% of IPPs and 5% of GPPs.

about their net assets. The corresponding statistics for the surveyed values were 18 (5.1%) and 2,834 (61.2%). The numbers of funds that provided size data increased over time, yet even at the end of the sample, there were many missing observations. Net assets data were provided for less than half of the funds for which the surveyed size data were available. Therefore, in the rest of the paper, only the fund size data as surveyed are used and referred to as 'Size'.

Table 1 shows the numbers of funds of four major investment styles and their corresponding Size as of the first half of 2019.[19] First, for each fund the average Size based on the values reported for the first half of 2019 was calculated. Then, the averages were summed across the investment styles.

********** insert Table 1 here **********

A considerably higher proportion of IPPs than GPPs reported their Size. The relative ranking of the individual investment styles based on how many funds reported their Size is similar to the ranking based on all the funds, yet the ranking of the investment styles based on Size changes. For instance, the Mixed High equity investment style appears to take a much bigger proportion of the market when funds' Size is accounted for than when the number of funds is counted.

Given the data availability, the performance analysis focuses on the UK equity, Global equity, and Mixed High equity investment styles. These investment styles were chosen as they are relatively big whether the number of funds or Size are accounted for, because they have relatively large numbers of GPP funds, and because the financial literature provides a range of factors that are commonly accepted for a risk–adjusted performance analysis. Moreover, these investment styles also have relatively, i.e. in comparison with the other investment styles, information about benchmarks. In total, 64 GPP and 1,357 IPP UK equity funds, 88 GPP and 935 IPP Global equity funds, and 48 GPP and 1,655 IPP Mixed High equity funds were used in the performance analysis. These corresponded to 38.4% of GPPs and 46.3% of IPPs with at least three years of data.

Morningstar Direct provides several performance statistics in relation to funds' PPBs if these are common market indexes.[20] To maintain as much of the sample as possible, great effort was made to

[19] Appendix 1 provides statistics for the more detailed specification of investment styles.
[20] Many PPBs are stated as an index plus x% p.a. or are weighted averages of other indexes.

identify individual PPBs and obtain their performance statistics. Morningstar Direct reports benchmarks as they are stated in primary prospectuses, i.e. there is no synchronization of their names or a common way of reporting compound indexes (i.e. indexes that are obtained as a weighted average of several indexes). The same benchmark can be recorded under a variety of abbreviations or components can be listed in a different order (e.g. one fund can report being benchmarked to FTSE Dv Ex UK TR GBP 60.000% + FTSE AllSh TR GBP 40.000%, while another fund states that it is benchmark is FTSE ALL Share TR GBP 40.000% + FTSE Dv Ex UK TR GBP 60.000%). Thus, hundreds of benchmark names were individually checked for consistency. Returns of all the indexes if originally not quoted in pound sterling were converted to pound sterling (using the Morningstar Direct conversion to preserve consistency).

Across the three investment styles of interest, 45 GPPs and 628 IPPs did not provide any information about their benchmarks and further 3 GPPs and 107 IPPs declared that they did not have a benchmark. In total, the UK equity GPP funds used four different benchmarks while the IPP counterparts used 47. Returns for all four UK GPP benchmarks were obtained. For the UK equity IPP funds returns on the 35 benchmarks were obtained. These corresponded to 1,249 IPP funds.

The Global equity GPPs used 41 benchmarks and returns were obtained for 23 of them (covering 74 funds). The corresponding figures for IPPs were 117 and 92 (covering 788 funds). The Mixed High equity GPPs used 27 benchmarks, of which returns were obtained for 14 (these covered 23 funds). And the IPP counterparts used 135 benchmarks, of which 82 (covering 550 funds) were obtained. The loss of benchmarks, and therefore funds, was caused by incomplete names of the benchmarks or of their components or incomplete information about the weights applied to individual components.

4.2. Risk factors

The regression methodology closely follows Ferreira et al. (2018). First, for each fund a series of $Alpha_{MOM}$ based on the Fama–French Three Factor Model with the Momentum factor (Fama and French 1992, 1993, Carhart 1997) was estimated using three years of monthly returns. The European risk factors were used for the UK equity funds and the Global factors were used for the Global equity

funds. As a robustness check, the alphas were also estimated using the CAPM and the Fama–French Five Factor Model (Fama and French 2015). These are referred to as $Alpha_{CAPM}$ and $Alpha_{FF5F}$ respectively. All the risk factors (Market, SMB, HML, RMW and CMA) were downloaded from Kenneth French's website[21] and converted to pound sterling using the Bank of England's end of month exchange rate of pound sterling to the U.S. dollar. To calculate the market excess returns the U.S. risk–free rate was added back to the market factors (Global and European) and the UK one–month T–bill rate was subtracted.

Several specifications of the risk factors were adopted to calculate the alphas of the Mixed High equity funds. Given that the Mixed High equity funds contain a high proportion of equities (both domestic and overseas equities were allowed), I used all three specifications of equity factors, as described above for the Global equity funds. However, since a small fraction of the Mixed High equity portfolios was invested in fixed income securities, controlling for the equity risk only seemed inappropriate. Fama and French (1993) argue that two types of risk need to be controlled for: term structure risk and default risk. They propose that changes in the term structure can be proxied by the difference between the returns on long–term government bonds and one–month T–bills measured at the end of the previous month. The change in default rates, being associated with the change in the economic conditions, can be proxied by the difference between the returns on the market portfolio of long–term corporate bonds and the long–term government bonds.

Therefore, the risk–adjusted performance of the Mixed High equity funds was achieved by regressing their monthly returns on the same equity factors that were used in the analysis of the Global equity funds plus the term structure factor and default factor calculated for the UK fixed income securities and for the global fixed income securities following Fama and French (1993). More specifically, the UK term structure factor (UK TERM) was defined as the difference between the monthly returns on the Markit iBoxx GBP Gilts 15+ index and the one–month lagged one–month T–bill. The UK default factor (UK DFLT) was the difference between Markit iBoxx GBP Corporate 15+ index and the Markit iBoxx GBP Gilts 15+ index. The Global term structure factor (GL TERM) was

[21] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

calculated in the same way as the UK term structure factor but using the Markit iBoxx Sovereigns 15+ index (a global index). Finally, the global default factor (GL DFLT) was defined as the difference between the Markit iBoxx Liquid Corp Long Dated index and the Markit iBoxx Sovereigns 15+ index. The indexes were obtained from Morningstar Direct.

Thus, the alphas of the Mixed High equity funds were assessed using a five–factor model (CAPM + the four fix income risk factors), an eight–factor models (MOM equity model + the four fix income risk factors), and a nine–factor model (FF5F + the four fix income risk factors) over the period April 2004 – June 2019 because it was the period of availability for some of the bond indexes. To simplify the notation, alphas of the Mixed High equity funds have the subscripts which identify the equity risk factors to keep it consistent with the notation adopted for the other two investment styles (the fixed income risk factors are the same in all the specifications).

The summary statistics of all the risk factors are provided in Appendix 2. They show that the European (EU) and the global (GL) equity risk factors have similar characteristics, and that they are more volatile than the fixed income risk factors.

4.3. Funds' and providers' characteristics

In this paper, I am interested in studying differences in the performance between GPPs and IPPs. Thus, the dummy D_{GPP} that separates GPPs from IPPs defined as one for funds offered under GPP agreements and zero otherwise (i.e. for the IPP agreements) is of the main interest. If GPPs outperform IPPs, the coefficients estimated for D_{GPP} should be statistically significantly positive.

To test the impact of the creation of IGCs on the relative difference in the performance between GPPs and IPPs, a dummy D_{IGC} equal to one for observations after April 2015, and zero otherwise was created. D_{IGC} is interacted with other variables to test the impact of the introduction of IGCs.

It is well documented in the mutual fund literature that funds' and providers' characteristics covary with performance (e.g. Brown and Goetzmann 1994, Elton et al. 1996, Jayaraman et al. 2002, Wermers 2003, Kacperczyk et al. 2005, Barras et al. 2010, Pástor et al. 2015, Ferreira et al. 2018). Thus, at the fund level – age, type of management and size, and at the provider level – absolute and relative size, and specialization are controlled for. Fund's age (Age) is measured as the number of months from

the month of a fund's inception. As there is some evidence that external management in not neutral to fund performance (e.g. Chen et. al. 2013, Del Guercio and Reuter 2014, Chuprinin et. al. 2015), a dummy 'Outsourced' equal to one if asset management of a fund was outsourced to an external asset manager and zero if a fund was run internally was introduced. Fund size is measured in two ways. First, referred to as Size, is the value of fund's assets at the end of a calendar month expressed in millions of pound sterling. The second measure, referred to as Size_avr, is the average of the reported monthly Size for the period of the alphas' calculations, i.e. across three–year windows used to estimate the alphas. Size_avr is introduced to better align the funds' size with the period over which the alphas were calculated and to disregard the argument that the results are subject to reverse causality, i.e. performance affects size.[22]

It is common to control for fund flows in the mutual fund literature. There is no data on pension fund flows, but this should not weaken the analysis. In contrast to mutual funds, UK pension fund investors do not have flexibility in withdrawing their money from one fund and transferring it to another. Hence, there are practically no outflows other than those related to retirement driven exits from the UK pension funds. Moreover, investors face restrictions on how much they can save tax free (e.g. since 2006 there has been a limit imposed on the total amount of money over the life time of an individual that's/he can save with pension tax benefits), the pension industry suffers from low transparency making it hard for individuals to identify best performing funds, and individual GPP funds are available to individuals only when they are employed by companies that have facilitated agreements with particular providers. Thus, it is rather unlikely that fund flows, even if observable, would be as performance related as they are documented to be for the U.S. mutual funds.

As already discussed in Section 4.1, the fund size statistics start in January 2007 and are available for a fraction of funds only. The frequency of the data improves over time, but still less than a third of the funds report their size statistics at some point between January 2007 and June 2019. As this creates issues with accounting for fund size, it also makes accounting for the size of providers

[22] I have also used lagged values of Size, but it did not affect the results. However, it resulted in a considerable loss of observations. Using Size_avr, increases the sample size as it smooths through missing observations, although, as discussed is Section 5, it reduces the explanatory power of the regressions. The estimation results for specifications with Size_avr are shown in Appendix 3 (online).

unreliable. To deal with the issue, the size of the providers is proxied by the number of funds they operate (Prov_funds) and by the number of funds they operate in a given investment style (Prov_style). That is, Prov_style denotes the number of UK equity funds in the regressions for the UK equity funds, the number of Global equity funds in the regression based on the Global equity funds, and the number of Mixed High equity funds in the Mixed High equity regressions. In addition, several ratios were calculated to control for the providers' position on the market. Prov_spec, a provider's specialization in each investment style (i.e. UK Equity, Global equity and Mixed High equity), is the ratio of a provider's number of funds within that investment style to all funds the provider offers at a given point in time. Finally, a provider's share of the market is measured as a fraction of the number of its funds to the number of funds available on the market (Prov_funds_sh) and as the ratio of the number of its funds within a given investment style (i.e. UK equity, Global equity, Mixed High equity) to all the funds operating on the market within that investment style (Prov_style_sh).

Table 2 Panels A, B and C show the estimates of $Alpha_{MOM}$, $Alpha_{CAPM}$, $Alpha_{FF5F}$, $Alpha_{PPB\ MOM}$, $Alpha_{PPB\ CAPM}$ and $Alpha_{PPB\ FF5F}$ for the UK equity, Global equity and Mixed High equity respectively. The estimates are similar within each investment style. Also, within each investment style, the alphas estimated for GPP funds are statistically significantly larger than the corresponding IPP alphas. However, given the sizes of the corresponding standard deviations, none of these alphas are statistically significantly different from zero.

********** insert Table 2 here **********

The summary statistics for the funds' and providers' characteristics for the three investment styles and the t–tests assessing the statistical significance of the differences between the means of the GPP and the IPP variables are shown in Appendix 2. These statistics show that there are no statistical differences between Age of the UK equity GPPs and IPPs, but both the Global equity and the Mixed High equity GPPs are younger than their IPP counterparts. Outsourcing is statistically significantly less popular among GPPs than IPPs and, on average, GPPs are bigger than IPPs. However, the opposite is true for the providers' size when it is measured by the total number of provider's funds. When the provider's size is quantified by the number of funds within each investment style, GPP providers are

smaller than the IPP providers for the UK equity and the Mixed High equity funds. Also, the market share of the GPP providers is smaller in the case of the UK equity and the Mixed High equity funds, but larger for the Global equity funds than it is for the corresponding IPP funds. For each investment style, the GPP providers are more specialized than the IPP providers.

5. Results

5.1. Do GPP funds outperform IPP funds?

Table 2 shows that there are statistically significant differences between the alphas estimated for GPPs and IPPs for all three investment styles. However, on average, the GPP and the IPP populations differ in their basic characteristics, as the differences between nearly all GPP and IPP control variables are statistically significantly different from zero (Table A2.2 in Appendix 2). To assess whether differences between the GPP and the IPP alphas persist after controlling for fund and provider characteristics, regressions were run with the alphas as the dependent variables and various combinations of the funds' and providers' characteristics as the independent variables. Given that controlling for fund size considerably reduces the sample size, I first show the results without controlling for fund size.

Table 3 shows the estimated coefficients and the corresponding p–values for the regressions that use $Alpha_{MOM}$ as the dependent variable. D_{GPP}, Outsourced, ln(Age), Provider_spec are the independent variables common across all the specifications. In addition, four variables are used, one at a time, to control for the providers' size and specialization in the investment style under consideration. These are: ln(Prov_funds), ln(Prov_style), Prov_funds_sh and Provider_style_sh. Only one of these variables is used at a time as their cross–correlations vary between 0.7 – 0.9. The results are grouped per investment style, i.e. first the estimates for the UK equity funds, then the Global equity funds, and finally for the Mixed High equity funds are shown. All the regressions have time dummies and are clustered per fund.

********** insert Table 3 here **********

Table 3 strongly supports the hypothesis that GPP funds outperformed IPP funds, i.e. all the coefficients' estimates for D_{GPP} are positive and statistically significant at 1%. Within each investment style, the estimated coefficients are very similar to each other regardless of the regression specification. The results show that investors saving with GPP UK equity funds earned 0.086 – 0.088% per month (or 1.032 – 1.56% per annum) more than investors saving with the IPP UK equity funds. Investors saving with the IPP Global equity and IPP Mixed High equity funds were similarly disadvantaged in comparison with the equivalent GPP investors.

The regressions also show that there is a negative relationship between funds' performance and Age, and that in the case of the UK and the Mixed High equity funds this relationship is statistically significant at 1%. In contrast to previous studies, outsourcing and performance are positively related. The relationship is significant at 1% for the UK equity funds, and 10% for the Global equity funds. Providers' specialization in the specific investment style is positively and statistically significantly associated with the fund performance for the UK and the Global equity funds.

The regressions also indicate that the providers' absolute and relative size on the pension market and in the specific investment style are not associated with the fund performance for the UK and Global equity funds. In contrast, they impact statistically significantly negatively on the performance of the Mixed High equity funds.

Finally, the R–squared adjusted vary little across various specifications for each investment style.

Table 4 shows the results analogous to those in Table 3 but this time the regressions control for the fund size (natural log of Size was taken). Table 4 confirms the results presented in Table 3, i.e. GPPs statistically significantly outperformed IPPs. The estimated D_{GPP} coefficients are slightly larger for the UK equity funds and the Mixed High equity funds, and smaller for the Global equity funds when funds' size was controlled for. The relationship between ln(Age) and performance tends to be negative, but the estimated coefficients are statistically insignificant. The Outsourcing and the Prov_spec coefficients remain positive and statistically significant for the UK equity and the Global equity funds. In addition, the Outsourcing coefficients for Mix High equity funds become statistically significant. The other variables controlling for the providers' absolute and relative size tend to retain signs that are consistent

with those shown in Table 3, but their statistical significance declines for the Mixed High equity funds and increases for the UK equity funds.

The coefficients of ln(Size) are negative and statistically insignificant for the UK equity funds, and statistically significantly positive for the Global equity and the Mixed High equity funds.

Table A3.3 (Appendix 3 to save space) shows the results analogous to those presented in Table 4 but for ln(Size_avr) controlling for fund size. The results presented in both tables (in particular, the estimates for D_{GPP}) are very small, yet, the R–squared adjusted are considerably higher for the specifications with ln(Size) than with ln(Size_avr).

To test the robustness of the findings, all the regressions were repeated with $Alpha_{CAPM}$ and $Alpha_{FF5F}$ as the dependent variables. To save space and given the similarity to the results shown in Tables 3 and 4, the outcomes of these regressions are shown in Appendix 3.

********** insert Table 4 here **********

5.2. Are the results driven by a selection bias?

As discussed in Section 3, differences in the performance between GPPs and IPPs may result from these two groups of funds being run by different types of providers. In total, there were 63 providers of pension funds of which only 21 serviced both GPP and IPP schemes. Of the remaining 42, 36 providers offered only IPP funds and six providers offered only GPP funds.

To test whether the observed differences in fund performance can be explained by unobserved provider–specific characteristics which happen to correlate with the type of pensions they provide, I re–estimated regressions on a sample of only those funds with providers who offered both types of pension schemes. Table 5 shows the results. To save space, given the similarity of the results across different specifications only the results for the regressions with ln (Prov_funds) are shown.[23] For each investment style two regression specifications are shown: one without controlling for fund size and one controlling for it.

[23] Prov_funds was chosen to control for the size of the providers because it had lower correlation with the other independent variables (especially Prov_spec) than the other variables controlling for the providers' characteristics.

********** insert Table 5 here **********

The size of the samples decreased considerably when the restriction of only using funds offered by the providers who offer both GPPs and IPPs was imposed. Yet, the results confirm the main hypothesis. The estimates of the D_{GPP} coefficients remain positive and statistically significant in all the specifications but one (the coefficient estimated for the Mixed High equity funds when the fund size is controlled for is not statistically significant). Thus, it can be concluded that narrowing the sample down to the funds offered by providers offering both GPPs and IPPs preserved the result, and the poorer performance of the IPP funds is not a sample selection phenomenon.

Differences in the performance of funds can also arise because of unobservable differences in investment strategies. Two funds may fall in the same category, e.g. Global equity, but focus on very different markets or equity types. However, if they have the same performance benchmarks, it can be assumed that we compare like–with–like. Therefore, to minimize the impact of potential differences in investment strategies across GPPs and IPPs, two tests were performed. First, the sample was restricted to these funds that used the benchmarks common for GPPs and IPPs. Having the same benchmarks indicates that funds have some similarity in performance targets, and hence should be expected to have similar performance.

In the second test, the performance of funds was measured against the performance of their benchmarks, i.e. the difference between the returns on a fund and its benchmark was used as the dependent variable in estimating the alphas, $Alpha_{PPB}$. The summary statistics of $Alpha_{PPB}$ for each investment style are shown in Table 2. The statistics show that for each investment style $Alpha_{PPB\ MOM}$, $Alpha_{PPB\ CAPM}$ and $Alpha_{PPB\ FF5F}$ are comparable. However, there are statistically significant differences between each type of the alphas between GPPs and IPPs. Once more, GPPs outperformed IPPs.

Table 6 Panel A shows the regression results when the sample of funds was restricted to those IPPs and GPPs that have the same benchmarks. Table 6 Panel B shows the estimates for the regressions when the $Alpha_{PPB\ MOM}$ were used as the dependent variables.

********** insert Table 6 here **********

Table 6 Panel A confirms that GPPs statistically and economically outperformed their IPP counterparts with the same benchmarks. All the coefficients estimated for the D_{GPP} dummy are positive and statistically significant. The estimates of the other coefficients are in line with the previous results. Finally, Table 6 Panel B shows that GPPs performed statistically and economically better against their benchmark than the IPP funds did against theirs.

5.3. Does the creation of IGCs make the difference?

The remaining question is whether the 2015 FCA reform of the investment governance of GPP schemes improved their performance, i.e. whether the performance gap between GPPs and IPPs has increased after the introduction of IGCs. To answer this question, I used the interactive term $D_{GPP}xD_{IGC}$. If the gap has widened, the coefficient of the interactive term should be positive.

To test the impact of fund size and provider size two more interactive terms were added, $D_{GPP}xD_{IGC}$xln(Prov_funds) and $D_{GPP}xD_{IGC}$xln(Size). If, as conjectured, the introduction of IGCs would be more beneficial for smaller funds and providers, then the coefficients estimated for these interactive terms should be negative. Table 7 shows the results for the regressions for the three investment styles of interest using $Alpha_{MOM}$ and $Alpha_{PPB\ MOM}$ as the dependent variables.

********** insert Table 7 here **********

Table 7 confirms the results presented so far, i.e. there is strong evidence that GPPs outperformed IPPs. Moreover, there is considerable evidence that the difference in the performance increased after the introduction of IGCs for the Global and Mixed High equity funds. The coefficients for $D_{GPP}xD_{IGC}$ estimated for the UK equity funds are positive but not statistically significant. All the coefficients are quite large in comparison with the corresponding coefficients estimated for D_{GPP}.

All the coefficients estimated for the interactive terms for provider size and for fund size are negative. Several of them are statistically significant. These results suggest that GPP investors of smaller Mixed High GPPs, especially if these schemes were offered by smaller providers benefited most from the 2015 reform.

6. Accounting for fees

Even though the gross performance is core in assessing the differences in the funds' performance aptitudes, to obtain the full picture of differences between IPPs and GPPs, fees paid by investors should be accounted for.[24]

The basic economic arguments suggest that due to the collective nature of GPP schemes, economies of scale can arise for the pension providers resulting in lower costs and, consequently, lower fees than those associated with IPP schemes. Lower fees of GPPs may also result from greater bargaining power associated with companies who negotiated them.[25]

Morningstar Direct does not provide historical data on fees and charges, thus Table 8 shows the summary statistics for the annal management charges (AMCs) and the total expense ratios (TERs) as of December 2018. The AMCs and the TERs are available for 379 and 248 GPP funds respectively, and 5,931 and 6,181 IPP funds respectively.[26] Table 8 shows the summary statistics for all the three investment styles discussed in the paper as well as for the other 15 styles as specified in Appendix 1. It also shows the results of t–tests comparing the means of the GPP and of the IPP populations.

********** insert Table 8 here **********

Table 8 shows that the majority of the average AMCs charged by IPPs were greater than one percent while all averages of AMCs charged by GPPs were considerably less than one percent. Similarly, while only four average TERs of IPPs were below one percent, this was true for 17 average GPP TERs. The average AMC across all GPPs was 0.544% and 1.031% for IPPs. The difference between them is statistically significant. The corresponding statistics for TER were 0.487% and 1.242% and the difference was also highly statistically significant.

The three investment styles analyzed in the paper also have statistically significantly different average AMCs and TERs. The differences between AMCs of IPPs and GPPs were 0.439%, 0.491%

[24] This research is not concerned with assessing the size of the amount of money pension fund managers generate for themselves and fund families (Berk and van Binsbergen 2015).
[25] Pasiouras (2018) shows that a higher level of consumer protection in developed countries is associated with lower cost of financial intermediation in the banking industry.
[26] This includes funds with less than three years of return data – the restriction that was adopted to estimate the funds' alphas.

and 0.378% for the UK equity, Global equity and the Mixed High equity funds respectively. The corresponding TER figures were 0.684%, 0.727% and 0.793%.

There is no information about loads of IPPs but, given that GPPs do not typically charge for switches across funds within the given pension arrangement and switching providers by companies is not supposed to generate extra costs for employees, it can only be expected that if these costs were also taken into account, then the differences between IPP and GPP funds would increase further. Thus, the average IPP investor earned lower returns and paid higher fees in comparison with the average GPP investor.

Most importantly, the differences in fees were smaller than the differences in the fund performance. This is an important observation given that the criticism of IPP funds focuses on their high fees, while there are much bigger differences in performance that until now have not been documented.

7. Conclusions

The unfair treatment of retail investors by financial intermediaries has attracted considerable attention in the finance literature. This paper, using monthly data for a large sample of UK personal pension funds for the period July 1990 – June 2019, adds to the debate by showing that pension funds offered to individuals through group pension agreements facilitated by employers (GPP schemes) statistically and economically outperformed pension funds offered directly to the public (IPP schemes). The comparison of three–year alphas estimated for the Fama–French Three Factor plus Momentum model shows that GPP funds, on average, earned 1% – 1.6% higher gross risk–adjusted returns per annum than the IPP funds. These differences in the performance cannot be attributed to a provider selection bias, differences in investment objectives or differences in risk attitudes between the IPP and the GPP investors.

I argue that the differences in performance result, at least in part, from the differences in investment governance and oversight. Although both GPPs and IPPs are contracts between individual investors and providers, informed, third parties (i.e. employers and governance committees) are involved in monitoring and oversight of GPP schemes. This is not the case of IPPs.

To address the importance of monitoring, I test the impact of the introduction of the Independent Governance Committees (IGCs) on the performance gap between IPPs and GPPs and find consistent evidence that the gap increased after the IGCs were created. Moreover, the performance gap increased more for smaller providers and smaller GPPs which is consistent with the documented evidence that smaller employers were less engaged in monitoring and oversight prior to the reform (OFT, 2013).

I also document that the gap between the GPPs' and the IPPs' performance increases further when the fees are accounted for. The existing data suggest that, on average across all investment styles, the difference between GPP and IPP funds' total expense ratios (TER) is about 0.755%. Combining this difference in fees with the difference in performance means that, other things being equal, the average IPP investor may have in his/her pension pot half of the money the average GPP investor has after 30 years of saving for retirement even though the amount they put aside is the same.

It is also important to note that the difference in the performance between GPPs and IPPs is greater than the difference in fees. While the attention of the press and pension activists concentrates on unfair charges of IPPs, my research shows that there is a much bigger, yet totally hidden from the public eye, issue – the underperformance of these funds in comparison of their GPP counterparts. This is an important finding with many policymaking and regulatory consequences.

Given the superior performance of GPP funds one might ask why IPP funds are not driven from the market. Both types of pension schemes have been in co–existence because they have been servicing relatively disjoint markets, and because, this far, politicians, policy–makers and regulators, have been more focused on employer–based pension schemes (including GPPs) than on individual personal pensions.

Taken together, the results have important policy–making implications. They suggest that individual investors need more protection from regulatory bodies than it is currently provided. In particular, the results suggest that empowering individual investors may not be enough to solve the problem of weak performance of pension funds. IPPs need more institutional oversight in the way GPPs have. Thus, given that IGCs can positively impact on GPPs performance, their role could be extended to cover IPPs or, alternatively, separate governance committees for IPPs could be created.

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Table 1. Summary statistics of the main investment styles of GPP and IPP funds.

	GPP						IPP					
	N	N %	N w/ size	N w/ size %	Size	Size %	N	N %	N w/ size	N w/ size %	Size	Size %
Equity												
UK	82	11.82	25	12.20	4,069.5	13.77	1,423	15.38	867	17.52	139,163.8	9.15
Global	122	17.58	29	14.15	4,096.4	13.86	1,015	10.97	578	11.68	84,129.9	5.53
Other equity	202	14.7	37	18.05	1,870.2	6.33	1,686	18.21	982	19.84	69,965.7	4.61
Mixed												
High equity	56	8.07	17	8.29	9,898.8	33.49	1,114	12.04	598	12.08	681,509.8	44.82
Low equity	5	0.72	2	0.98	322.9	1.09	681	7.36	355	7.17	63,176.56	4.16
Fixed income	136	19.6	50	24.39	4,111.2	13.91	1,238	13.38	697	14.09	68,785.7	4.52
Other styles	191	27.51	45	21.96	51,89.6	17.56	2,098	22.66	872	17.61	413,746.5	27.21
Total	694	100.0	205	100.00	29,558.2	100.00	9,255	100.0	4949	100.0	1,520,478	100.0

Notes: The table shows how many funds counted as primary asset classes (N) existed for each individual investment style for GPP and IPP schemes as of June 2019; how many of these funds had at least one observation of size (N w/ size) in January – June 2019, and the average size of funds in each investment style (in £m) for January – June 2019. A more detailed specification of investment styles is in Appendix 1 (online).

Table 2. Summary statistics of the fund performance variables and the t–test statistics.

	GPP			IPP			t-test	
	N	Mean	St dev	N	Mean	St dev	Diff	t-stat
Panel A: UK equity								
$Alpha_{MOM}$	7,092	0.573	0.722	130,197	0.541	0.677	0.031***	3.457
$Alpha_{CAPM}$	7,092	0.579	0.671	130,197	0.588	0.720	0.039***	4.695
$Alpha_{FF5F}$	7,092	0.616	0.716	130,197	0.542	0.726	0.029***	3.276
$Alpha_{PPB\ MOM}$	6,236	0.049	0.249	94,559	0.024	0.305	0.025***	6.370
$Alpha_{PPB\ CAPM}$	6,236	0.053	0.246	94,559	0.026	0.300	0.027***	6.916
$Alpha_{PPB\ FF5F}$	6,236	0.059	0.253	94,559	0.034	0.314	0.024***	6.036
Panel B: Global equity								
$Alpha_{MOM}$	10,753	0.099	0.296	93,670	-0.003	0.381	0.101***	26.688
$Alpha_{CAPM}$	10,753	0.138	0.292	93,672	0.040	0.389	0.098***	25.311
$Alpha_{FF5F}$	10,753	0.086	0.295	93,670	-0.010	0.381	0.096***	25.187
$Alpha_{PPB\ MOM}$	5,396	-0.024	0.221	58,854	-0.083	0.288	0.059***	14.671
$Alpha_{PPB\ CAPM}$	5,396	-0.032	0.227	58,854	-0.099	0.297	0.066***	16.012
$Alpha_{PPB\ FF5F}$	5,396	-0.029	0.237	58,854	-0.094	0.294	0.065***	15.670
Panel C: Mixed High equity								
$Alpha_{MOM}$	5,466	-0.012	0.189	114,163	-0.099	0.220	0.087***	28.725
$Alpha_{CAPM}$	5,466	-0.005	0.200	114,163	-0.104	0.219	0.099***	32.697
$Alpha_{FF5F}$	5,466	-0.022	0.198	114,163	-0.107	0.225	0.085***	27.371
$Alpha_{PPB\ MOM}$	2,331	0.041	0.236	53,279	-0.011	0.236	0.052***	10.485
$Alpha_{PPB\ CAPM}$	2,331	0.052	0.235	53,279	-0.009	0.238	0.061***	12.080
$Alpha_{PPB\ FF5F}$	2,331	0.051	0.236	53,279	-0.011	0.242	0.062***	12.074

Notes: $Alpha_{(.)}$ and $Alpha_{PPB(.)}$ are three-year window estimates of the alpha coefficients for models as specified in the subscripts, i.e. MOM is the Fama–French Three Factor Model with Momentum, CAPM is the CAPM, and FF5F is the Fama–French Five Factor Model; each model has four additional factors (UK TERM, GL TERM, UK DFLT and GL DFLT) for the Mixed High equity funds. The PPB subscript indicates that the performance was measured against the Primary Prospectus Benchmarks. The statistics were calculated for July 1990 – June 2019 for the UK equity and the Global equity funds, and for April 2004 – June 2019 for the Mixed High equity funds. N is the number of monthly observations. Diff is the difference between the GPP and the IPP means with *** – 1% significance, ** –5% significance and * – 10% significance.

Table 3. Regressions with $Alpha_{MOM}$ as the dependent variable.

	UK equity				Global equity				Mixed High equity			
D_{GPP}	0.088***	0.089***	0.086***	0.086***	0.087***	0.087***	0.087***	0.086***	0.079***	0.072***	0.077***	0.071***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln(Age)	-0.040***	-0.040***	-0.040***	-0.040***	-0.014	-0.014	-0.014	-0.013	-0.019***	-0.020***	-0.019***	-0.020***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.261)	(0.260)	(0.257)	(0.266)	(0.002)	(0.001)	(0.002)	(0.001)
Outsourced	0.059***	0.058***	0.061***	0.060***	0.033*	0.033*	0.033*	0.032*	0.005	0.007	0.004	0.004
	(0.000)	(0.000)	(0.000)	(0.000)	(0.074)	(0.071)	(0.074)	(0.085)	(0.577)	(0.493)	(0.639)	(0.686)
Prov_spec	0.451***	0.429***	0.439***	0.398***	0.177**	0.184**	0.171*	0.228***	0.000	0.000	0.000	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.036)	(0.019)	(0.053)	(0.003)	(0.532)	(0.184)	(0.527)	(0.118)
ln(Prov_funds)	0.005				-0.002				-0.007*			
	(0.388)				(0.777)				(0.094)			
ln(Prov_style)		0.007				-0.003				-0.011***		
		(0.298)				(0.675)				(0.007)		
Prov_funds_sh			0.118				-0.066				-0.343**	
			(0.542)				(0.702)				(0.033)	
Prov_style_sh				0.196				-0.044				-0.394***
				(0.221)				(0.816)				(0.003)
Constant	0.601***	0.611***	0.618***	0.621***	0.374***	0.373***	0.373***	0.361***	0.217***	0.221***	0.196***	0.200***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2adj	0.712	0.712	0.712	0.712	0.444	0.444	0.444	0.444	0.224	0.226	0.226	0.229
N	136,555	136,555	136,555	136,555	103,288	103,288	103,288	103,057	112,991	112,991	112,991	112,991

Notes: $Alpha_{MOM}$ was estimated from three–year moving windows for the Fama–French Three Factor Model with Momentum. D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by fund. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table 4. Regressions with $Alpha_{MOM}$ as the dependent variable when funds' size (ln(Size)) is controlled for.

	UK equity				Global equity				Mixed High equity			
D_{GPP}	0.141***	0.140**	0.142***	0.139**	0.080***	0.079***	0.074***	0.071***	0.110***	0.101***	0.111***	0.107***
	(0.010)	(0.010)	(0.010)	(0.011)	(0.001)	(0.001)	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
ln(Age)	-0.014	-0.014	-0.014	-0.015	0.008	0.009	0.010	0.010	-0.010	-0.012	-0.010	-0.012
	(0.329)	(0.328)	(0.328)	(0.320)	(0.558)	(0.552)	(0.506)	(0.482)	(0.161)	(0.107)	(0.151)	(0.103)
Outsourced	0.046*	0.047*	0.047*	0.047*	0.047**	0.054**	0.047**	0.044**	0.033***	0.035***	0.032***	0.032***
	(0.071)	(0.071)	(0.058)	(0.054)	(0.023)	(0.015)	(0.030)	(0.040)	(0.007)	(0.004)	(0.007)	(0.006)
ln(Size)	-0.005	-0.005	-0.006	-0.006	0.007**	0.008**	0.007**	0.006**	0.003	0.004*	0.003*	0.004*
	(0.145)	(0.148)	(0.129)	(0.141)	(0.020)	(0.017)	(0.024)	(0.042)	(0.102)	(0.060)	(0.088)	(0.051)
Prov_spec	0.444***	0.425***	0.430***	0.367*	0.257*	0.192	0.279*	0.363***	0.000	0.000	0.000	0.000
	(0.003)	(0.005)	(0.004)	(0.076)	(0.057)	(0.148)	(0.061)	(0.002)	(0.821)	(0.682)	(0.818)	(0.647)
ln(Prov_funds)	0.005				0.011				-0.004			
	(0.613)				(0.235)				(0.361)			
ln(Prov_style)		0.005				0.005				-0.010**		
		(0.637)				(0.653)				(0.031)		
Prov_funds_sh			0.288				0.420*				-0.158	
			(0.306)				(0.085)				(0.273)	
Prov_style_sh				0.178				0.471*				-0.251**
				(0.491)				(0.072)				(0.026)
Constant	0.458***	0.469***	0.480***	0.494***	-0.758***	-0.716***	-0.726***	-0.727***	0.225***	0.231***	0.207***	0.207***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2adj	0.681	0.681	0.681	0.681	0.403	0.402	0.403	0.404	0.213	0.215	0.213	0.215
N	36,745	36,745	36,745	36,745	37,314	37,314	37,314	37,104	51,232	51,232	51,232	51,232

Notes: $Alpha_{MOM}$ was estimated from three–year moving windows for the Fama–French Three Factor Model with Momentum. D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by fund. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table 5. Regressions with $Alpha_{MOM}$ as the dependent variable when only funds offered by providers who service both GPP and IPP schemes were included in the sample.

	UK equity		GL equity		Mixed High equity	
D_{GPP}	0.146**	0.168**	0.069***	0.038*	0.041*	-0.003
	(0.029)	(0.014)	(0.000)	(0.066)	(0.050)	(0.908)
ln(Age)	-0.028*	-0.023	-0.015	-0.004	-0.015*	0.005
	(0.086)	(0.217)	(0.308)	(0.839)	(0.058)	(0.561)
Outsourced	0.056**	0.042	0.034	0.014	0.000	0.037**
	(0.020)	(0.149)	(0.115)	(0.521)	(0.992)	(0.014)
ln(Size)		-0.006		0.002		0.001
		(0.231)		(0.567)		(0.565)
Prov_spec	0.885***	0.571***	0.029	0.071	-0.565***	-0.312*
	(0.000)	(0.004)	(0.769)	(0.565)	(0.002)	(0.092)
ln(Prov_funds)	0.006	0.025	-0.015	-0.006	-0.029***	-0.022**
	(0.711)	(0.128)	(0.107)	(0.593)	(0.006)	(0.030)
Constant	0.571***	0.367**	0.494***	-0.501***	0.382***	0.224**
	(0.000)	(0.014)	(0.000)	(0.000)	(0.000)	(0.015)
R^2adjusted	0.714	0.687	0.448	0.390	0.227	0.239
N	60,208	26,477	76,307	26,585	77,018	34,048

Notes: $Alpha_{MOM}$ was estimated from three–year moving windows for the Fama–French Three Factor Model with Momentum. D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by fund. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table 6. Primary Prospectus Benchmarks' related performance.

	UK equity		Global equity		Mixed High equity	
Panel A: GPP and IPP funds have the same Primary Prospectus Benchmark, $Alpha_{MOM}$ is the dependent variable						
D_{GPP}	0.098***	0.163**	0.091***	0.083***	0.088***	0.066**
	(0.002)	(0.016)	(0.000)	(0.008)	(0.010)	(0.020)
ln(Age)	-0.020*	0.009	-0.023*	-0.006	-0.052***	-0.044**
	(0.069)	(0.574)	(0.062)	(0.661)	(0.003)	(0.010)
Outsourced	0.068***	0.084***	0.013	0.058**	-0.008	0.003
	(0.000)	(0.005)	(0.472)	(0.030)	(0.676)	(0.918)
ln(Size)		0.002		0.012***		-0.004
		(0.598)		(0.004)		(0.440)
Prov_spec	0.373***	0.236	0.310**	0.338*	-1.299***	-1.854***
	(0.000)	(0.150)	(0.013)	(0.094)	(0.001)	(0.000)
ln(Prov_funds)	0.002	-0.006	0.015	0.019	0.014	0.054**
	(0.804)	(0.613)	(0.113)	(0.164)	(0.452)	(0.021)
Constant	0.514***	0.311**	0.365***	-0.839***	0.453***	0.303*
	(0.000)	(0.028)	(0.000)	(0.000)	(0.000)	(0.060)
R^2adjusted	0.701	0.685	0.419	0.380	0.310	0.256
N	92,504	24,482	56,367	23,678	15,628	7,722
Panel B: $Alpha_{PPB\ MOM}$ is the dependent variable						
D_{GPP}	0.078***	0.152***	0.066***	0.098***	0.064*	0.266***
	(0.003)	(0.002)	(0.005)	(0.008)	(0.086)	(0.000)
ln(Age)	-0.019	-0.005	-0.011	0.009	-0.028**	-0.024*
	(0.101)	(0.776)	(0.483)	(0.636)	(0.038)	(0.062)
Outsourced	0.077***	0.065***	0.008	0.065**	0.031	0.066***
	(0.000)	(0.004)	(0.669)	(0.021)	(0.115)	(0.001)
ln(Size)		-0.002		0.019***		0.008**
		(0.570)		(0.000)		(0.032)
Prov_spec	0.253**	0.016	0.063	0.170	-0.002	-0.026
	(0.017)	(0.915)	(0.565)	(0.331)	(0.504)	(0.312)
ln(Prov_funds)	-0.003	-0.004	0.014	0.018	-0.006	-0.006
	(0.699)	(0.702)	(0.135)	(0.194)	(0.490)	(0.566)
Constant	0.291***	0.172	0.074	-0.450***	0.233***	0.241***
	(0.000)	(0.197)	(0.556)	(0.006)	(0.006)	(0.008)
R^2adj	0.087	0.076	0.039	0.070	0.029	0.062
N	100,147	28,182	63,386	25,951	52,365	25,830

Notes: $Alpha_{MOM}$ was estimated from three–year moving windows for the Fama–French Three Factor Model with Momentum. $Alpha_{PPB\ MOM}$ was estimated from three-year moving windows for the Fama–French Three Factor Model with Momentum for the difference in returns on funds and their Primary Prospectus Benchmarks. D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by funds. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table 7. Impact of the creation of Independent Governance Committees (IGCs).

	UK equity		GL equity		Mixed High equity	
	$Alpha_{MOM}$	$Alpha_{PPB\ MOM}$	$Alpha_{MOM}$	$Alpha_{PPB\ MOM}$	$Alpha_{MOM}$	$Alpha_{PPB\ MOM}$
D_{GPP}	0.217***	0.164***	0.107***	0.118**	0.076**	0.268***
	(0.000)	(0.004)	(0.000)	(0.018)	(0.011)	(0.000)
$D_{GPP}xD_{IGC}$	0.275	0.388	0.197	0.475**	0.296*	0.142***
	(0.502)	(0.298)	(0.341)	(0.015)	(0.079)	(0.002)
$D_{GPP}xD_{IGC}x$ ln(Prov_funds)	-0.002	-0.054***	-0.011	-0.028**	-0.032*	-0.150***
	(0.927)	(0.009)	(0.273)	(0.017)	(0.058)	(0.000)
$D_{GPP}xD_{IGC}x$ ln(Size)	-0.021	-0.008	-0.010	-0.019**	-0.004	-0.078***
	(0.325)	(0.607)	(0.295)	(0.029)	(0.576)	(0.010)
ln(Age)	-0.014	-0.005	0.008	0.009	-0.009	-0.024*
	(0.345)	(0.743)	(0.596)	(0.623)	(0.217)	(0.065)
Outsourced	0.048*	0.063***	0.047**	0.065**	0.032***	0.066***
	(0.063)	(0.006)	(0.028)	(0.020)	(0.008)	(0.001)
ln(Size)	-0.005	-0.002	0.008**	0.019***	0.003	0.008**
	(0.206)	(0.546)	(0.019)	(0.000)	(0.118)	(0.036)
Prov_spec	0.459***	0.017	0.249*	0.150	0.000	-0.026
	(0.002)	(0.907)	(0.064)	(0.381)	(0.815)	(0.312)
ln(Prov_funds)	0.004	-0.001	0.012	0.020	-0.003	-0.003
	(0.663)	(0.923)	(0.226)	(0.152)	(0.547)	(0.809)
Constant	0.302***	0.007	-0.846***	-0.572***	0.102*	-0.044
	(0.007)	(0.956)	(0.000)	(0.001)	(0.067)	(0.660)
R^2adj	0.681	0.079	0.403	0.072	0.215	0.067
N	36,745	28,182	37,266	25,945	51,281	25,830

Notes: $Alpha_{MOM}$ (estimated from three–year moving windows for the Fama–French Three Factor Model with Momentum) or $Alpha_{PPB\ MOM}$ (estimated from three-year moving windows for the Fama–French Three Factor Model with Momentum for the difference in returns on funds and their Primary Prospectus Benchmark) are the dependent variables. D_{GPP} is equal to one for GPP funds and zero otherwise. D_{IGC} is equal to one for April 2015 – June 2019, and zero otherwise. All regressions have yearly fixed effects and are clustered by funds. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table 8. Summary statistics for the annual management fees (AMC) and the total expense ratios (TER) and t–test results.

		GPP			IPP			t–test	
		N	Mean	St dev	N	Mean	St dev	Diff	t–stat
Panel A: AMC									
Equity	UK	53	0.704	0.321	909	1.143	0.530	-0.439***	-9.261
	Global	78	0.587	0.340	622	1.078	0.649	-0.491***	-10.55
	North America	11	0.455	0.333	238	1.138	0.552	-0.684***	-6.417
	Europe	14	0.676	0.454	302	1.255	0.619	-0.579***	-4.584
	Japan	8	0.504	0.314	145	1.116	0.514	-0.612***	-5.145
	Asia	11	0.535	0.331	202	1.192	0.627	-0.657***	-6.025
	Emerging	18	0.704	0.318	194	1.278	0.535	-0.574***	-6.806
Mixed	High equity	37	0.631	0.339	702	1.009	0.776	-0.378***	-6.001
	Low equity	5	0.590	0.459	468	1.026	0.573	-0.436***	-2.110
Fixed Income	Gilts	15	0.297	0.258	175	0.774	0.475	-0.478***	-6.312
	Corporate High Yield	2	0.400	0.071	196	1.141	0.477	-0.741***	-12.244
	Corporate Investment Grade	47	0.377	0.262	312	0.883	0.489	-0.506***	-10.730
	Global	5	0.280	0.271	102	0.991	0.452	-0.711***	-5.501
Rest	Money Market	8	0.261	0.306	150	0.855	0.810	-0.594***	-4.680
	Property	10	0.870	0.433	127	1.101	0.457	-0.231	-1.6158
	Specialist	13	0.793	0.415	508	0.927	0.497	-0.135	-1.148
	Unclassified	40	0.283	0.205	433	0.596	0.447	-0.312***	-8.036
	Other	4	0.765	0.406	146	1.266	0.483	-0.501***	-2.421
	Total	379	0.544	0.357	5,931	1.031	0.605	-0.487***	-24.420
Panel B: TER									
Equity	UK	26	0.637	0.422	930	1.322	0.988	-0.684***	-7.702
	Global	45	0.548	0.366	641	1.275	0.956	-0.727***	-10.959
	North America	7	0.317	0.333	252	1.335	1.247	-1.018***	-6.869
	Europe	9	0.560	0.497	354	1.525	1.423	-0.965***	-5.297
	Japan	5	0.406	0.369	159	1.347	1.201	-0.941***	-4.939
	Asia	9	0.523	0.356	210	1.399	1.112	-0.876***	-6.203
	Emerging	17	0.690	0.414	220	1.399	0.521	-0.709***	-6.664
Mixed	High equity	22	0.503	0.284	742	1.296	1.041	-0.793***	-11.080
	Low equity	4	0.393	0.406	502	1.323	1.078	-0.930***	-4.464
Fixed Income	Gilts	9	0.237	0.128	151	0.826	0.804	-0.590***	-7.557
	Corporate High Yield	4	0.668	0.247	239	1.277	1.096	-0.610***	-4.286
	Corporate Investment Grade	30	0.269	0.150	314	0.993	0.964	-0.724***	-11.896
	Global	5	0.166	0.073	116	1.334	1.535	-1.169***	-7.991
Rest	Money Market	4	0.125	0.024	112	0.795	0.671	-670***	-10.392
	Property	7	1.051	0.603	122	1.334	0.945	-0.282	-1.161
	Specialist	11	0.872	0.420	485	1.182	0.727	-0.310***	-2.367
	Unclassified	32	0.274	0.194	470	0.754	0.736	-0.480***	-9.940
	Other	2	0.580	0.467	162	1.459	0.860	-0.879***	-2.609
	Total	248	0.487	0.382	6,181	1.242	1.026	-0.755***	-27.414

Notes: The AMC and TER are as of December 2018. Diff is the difference between the GPP mean and the IPP mean. *** - 1% significance, ** – 5% significance and * – 10% significance.

Appendix 1 (online)

Table A1.1. Specifications of investment styles.

Asset Class	Investment styles	ABI PC classification
Equity	UK equity	UK All Companies, UK Smaller Companies, UK Equity Income
	Europe equity	Europe excl. UK Equities Europe incl. UK Equities
	North America equity	North America Equities
	Japan equity	Japan Equities
	Global equity	Global Equities
	Emerging equity	Global Emerging Markets Equities
	Asia equity	Asia Pacific excl. Japan Equities, Asia Pacific incl. Japan Equities
Mixed	High equity	Mixed Investment 40-85 Shares Flexible Investment
	Low equity	Mixed Investment 0-35 Shares Mixed Investment 20-60 Shares
Fixed Income	Gilts	UK Gilt, UK Index-Linked Gilts
	Corporate High Yield	Sterling High Yield Sterling Strategic Bond
	Corporate Investment Grade	Sterling Long Bond, Sterling Corporate Bond, Sterling Fixed Interest
	Global	Global Fixed Interest, Global High Yield
Rest	Money Market	Money Market, Deposit & Treasury
	Property	UK Property Securities, UK Direct Property, Global Property
	Specialist	Specialist
	Other	Protected/Guaranteed Funds, Commodity/Energy
	Unclassified	Unclassified

Table A1.2. Summary statistics of GPP and the IPP funds.

		GPP						IPP					
		N	N %	N w/ size	N w/ size %	Size	Size %	N	N %	N w/ size	N w/ size %	Size	Size %
Equity	UK	82	11.82	25	12.20	4,069.5	13.77	1,423	15.38	867	17.52	139,163.8	9.15
	Global	122	17.58	29	14.15	4,096.4	13.86	1,015	10.97	578	11.68	84,129.9	5.53
	North America	19	2.74	7	3.41	392.9	1.33	375	4.05	208	4.20	28,848.9	1.90
	Europe	21	3.03	6	2.93	331.9	1.12	481	5.20	290	5.86	17,775.7	1.17
	Japan	18	2.59	6	2.93	123.4	0.42	226	2.44	136	2.75	9,064.1	0.60
	Asia	20	2.88	6	2.93	259.5	0.88	303	3.27	179	3.62	9,532.1	0.63
	Emerging	24	3.46	12	5.85	762.5	2.58	301	3.25	169	3.41	4,744.9	0.31
Mixed	High equity	56	8.07	17	8.29	9,898.8	33.49	1114	12.04	598	12.08	681,509.8	44.82
	Low equity	5	0.72	2	0.98	322.9	1.09	681	7.36	355	7.17	63,176.56	4.16
Fixed Income	Gilts	36	5.19	13	6.34	987.1	3.34	268	2.90	133	2.69	24,975.4	1.64
	Corporate High Yield	8	1.15	5	2.44	10.9	0.04	296	3.20	207	4.18	3,507.9	0.23
	Corporate Investment Grade	82	11.82	30	14.63	3,103.6	10.50	515	5.56	275	5.56	35,118.9	2.31
	Global	10	1.44	2	0.98	9.6	0.03	159	1.72	82	1.66	5,183.5	0.34
Rest	Money Market	25	3.60	11	5.37	900.4	3.05	296	3.20	154	3.11	3,0256.6	1.99
	Property	18	2.59	8	3.90	1017.9	3.44	204	2.20	116	2.34	69,780.7	4.59
	Specialist	20	2.88	6	2.93	2,042.9	6.91	713	7.70	357	7.21	217,902.6	14.33
	Unclassified	123	17.72	19	9.27	1,188.2	4.02	658	7.11	137	2.77	94,323.1	6.20
	Other	5	0.72	1	0.49	40.2	0.14	227	2.45	108	2.18	1,483.5	0.10
	Total	694	100.0	205	100.00	29,558.2	100.00	9,255	100.0	4949	100.0	1,520,478	100.0

Notes: The table shows how many funds counted as primary asset classes (N) existed for each individual investment style for GPP and IPP schemes as of June 2019; how many of these funds had at least one observation of size (N w/ size) in January – June 2019, and the average size of funds in each investment style (in £m) for January – June 2019.

Appendix 2

Table A2.1. Summary statistics of the risk factors.

	N	Mean	St. dev	Min	Max
EU Market	306	0.428	4.445	-14.814	13.699
EU SMB	306	0.101	3.221	-9.326	12.246
EU HML	306	0.406	3.475	-9.357	15.385
EU RMW	306	0.478	3.119	-8.419	14.074
EU CMA	306	0.338	3.355	-11.535	16.340
EU MOM	306	1.024	4.872	-28.517	21.514
GL Market	306	0.437	4.238	-16.251	11.559
GL SMB	306	0.119	3.379	-11.006	13.782
GL HML	306	0.380	3.476	-8.232	14.910
GL RMW	306	0.517	3.165	-7.172	14.840
GL CMA	306	0.307	3.353	-10.579	15.347
GL MOM	306	0.719	4.861	-26.737	20.918
UK TERM	207	0.456	2.881	-8.693	10.113
UK DFLT	207	-0.031	2.012	-7.464	5.950
GL TERM	207	0.373	2.641	-12.297	8.077
GL DFLT	207	-0.081	2.179	-11.055	10.252

Notes: The table summarises the characteristics of the monthly time series of the European equity (EU) and of the global equity (GL) risk factors for the Fama–French Five Factor Model (Market, HML, SMB, RMW and CMA) and the Momentum factor (MOM) for July 1990 – June 2019. It also summarises the UK and the global (GL) risk factors for the fixed income securities (DFLT and TERM), as defined in Fama and French (1993) for April 2004 – June 2019. N is the number of monthly observations.

Table A2.2. Summary statistics of the control variables and the t–test statistics.

	GPP			IPP			t-test	
	N	Mean	St dev	N	Mean	St dev	Diff	t-stat
Panel A: UK equity								
Age	11,902	126.27	99.073	172,656	125.65	97.689	0.614	0.663
Outsourced	21,256	0.115	0.319	326,543	0.681	0.466	-0.566***	170.0
Size (£m)	2,253	610.9	3387.4	62,673	228.2	1073.6	382.65***	14.519
Size_avr (£m)	3,202	654.0	3660.5	66,011	235.8	1074.0	418.21***	17.622
Prov_spec	20,289	0.169	0.073	314,386	0.162	0.061	0.006***	13.822
Prov_funds	21,256	315.75	420.18	326,543	424.8	466.7	-109.09***	-33.216
Prov_style	21,256	53.652	71.534	326,543	70.515	77.127	-16.004***	-29.962
Prov_funds_sh	21,256	0.038	0.050	326,543	0.048	0.044	-0.010***	-33.977
Prov_style_sh	21,256	0.037	0.047	326,543	0.048	0.042	-0.010***	-30.835
Panel B: Global equity								
Age	23,822	111.93	83.30	129,238	134.1	104.5	-22.176***	-30.986
Outsourced	41,134	0.298	0.457	229,839	0.598	0.490	-0.300***	-120.00
Size (£m)	3,520	404.6	987.7	44,270	159.1	635.3	245.51***	21.000
Size_avr (£m)	4,972	357.2	985.5	46,557	151.0	556.0	206.12***	22.619
Prov_spec	39,406	0.179	0.146	224,606	0.136	0.132	0.044***	59.638
Prov_funds	41,134	386.0	442.1	229,839	472.5	477.8	-86.518***	-34.201
Prov_style	41,134	57.71	63.85	229,839	53.415	52.762	4.292***	14.686
Prov_funds_sh	41,134	0.041	0.044	229,839	0.049	0.039	0.008***	38.320
Prov_style_sh	41,134	0.049	0.045	229,211	0.048	0.035	0.001***	3.494
Panel C: Mixed High equity								
Age	10,812	148.45	123.91	202,080	169.1	224.4	-20.635***	-9.486
Outsourced	19,880	0.161	0.367	401,347	0.547	0.498	-0.386***	-120.0
Size	2,335	454.46	773.70	70,072	1059.6	3551.9	-605.14***	-8.226
Size_avr	3,020	436.77	772.45	74,651	990.0	3396.2	-553.23***	-8.942
Prov_spec	7,455	0.144	0.039	354,830	0.137	0.065	0.008***	10.491
Prov_funds	19,495	285.96	350.31	387,262	456.42	492.66	-170.46***	-47.705
Prov_style	7,455	67.554	56.375	366,202	80.043	85.212	-12.490***	-12.599
Prov_funds_sh	19,880	0.029	0.028	401,347	0.055	0.043	-0.026***	-84.066
Prov_style_sh	7,455	0.049	0.025	366,202	0.061	0.072	-0.013***	-15.036

Notes: Age is the number of months since funds' inception. Outsourced equals one for funds under external management and zero for funds managed internally. Size is the size of funds as surveyed and Size_avr is to three-year moving average of size as surveyed. Prov_spec is the ratio of the number of a provider's funds in the given investment style to all its funds. Prov_funds is the number of a provider's funds. Prov_style is the number of a provider's funds in the given investment style. Prov_funds_sh is the ratio of the number of a provider's funds to the number of all funds in the market. Prov_style_sh is the number of a provider's funds in the given investment style to the number of all funds in the market in that investment style. All Size and Size_avr were calculated for January 2007 – June 2019. The other statistics were calculated for July 1990 – June 2019 for the UK equity and the Global equity funds, and for April 2004 – June 2019 for the Mixed High equity funds. N is the number of monthly observations. Diff is the difference between the GPP and the IPP means with *** – 1% significance, ** –5% significance and * – 10% significance.

Appendix 3

Table A3.1. Table equivalent to Table 3 when $Alpha_{CAPM}$ is the dependent variable

	UK equity				GL equity				Mixed High equity			
D_{GPP}	0.095***	0.096***	0.092***	0.092***	0.079***	0.079***	0.079***	0.078***	0.091***	0.085***	0.089***	0.083***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln(Age)	-0.043***	-0.042***	-0.043***	-0.043***	-0.022**	-0.022**	-0.022**	-0.022**	-0.018***	-0.018***	-0.017***	-0.018***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.031)	(0.031)	(0.029)	(0.031)	(0.004)	(0.002)	(0.003)	(0.002)
Outsourced	0.054***	0.053***	0.056***	0.055***	0.023	0.023	0.024	0.022	0.003	0.004	0.003	0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.124)	(0.130)	(0.114)	(0.142)	(0.744)	(0.649)	(0.788)	(0.850)
Prov_spec	0.430***	0.406***	0.412***	0.378***	0.114	0.118*	0.100	0.135**	0.152***	0.156***	0.134***	0.138***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.103)	(0.070)	(0.162)	(0.043)	(0.000)	(0.000)	(0.000)	(0.000)
ln(Prov_funds)	0.006				-0.001				-0.010**			
	(0.327)				(0.910)				(0.012)			
ln(Prov_style)		0.008				0.000				-0.361**		
		(0.218)				(0.998)				(0.026)		
Prov_funds_sh			0.095				-0.073				-0.392***	
			(0.629)				(0.634)				(0.003)	
Prov_style_sh				0.163				0.016				0.006***
				(0.309)				(0.925)				(0.002)
Constant	0.741***	0.751***	0.762***	0.764***	0.556***	0.553***	0.561***	0.548***	0.152***	0.156***	0.134***	0.138***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2adj	0.730	0.730	0.730	0.730	0.508	0.508	0.508	0.508	0.217	0.219	0.219	0.222
N	136,555	136,555	136,555	136,555	103,290	103,290	103,290	103,059	112,991	112,991	112,991	112,991

Notes: $Alpha_{CAPM}$ was estimated from three–year moving windows for the CAPM. D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by fund. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table A3.2. Table equivalent to Table 3 when $Alpha_{FF5F}$ is the dependent variable

	UK equity				GL equity				Mixed High equity			
D_{GPP}	0.074***	0.075***	0.072***	0.073***	0.087***	0.087***	0.087***	0.085***	0.075***	0.069***	0.073***	0.067***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln(Age)	-0.034***	-0.034***	-0.035***	-0.035***	-0.012	-0.012	-0.012	-0.012	-0.020***	-0.021***	-0.020***	-0.021***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.265)	(0.263)	(0.267)	(0.282)	(0.002)	(0.001)	(0.002)	(0.001)
Outsourced	0.047***	0.046***	0.048***	0.047***	0.026	0.027	0.026	0.025	0.002	0.003	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.112)	(0.106)	(0.117)	(0.142)	(0.868)	(0.767)	(0.917)	(0.966)
Prov_spec	0.358***	0.347***	0.345***	0.331***	0.081	0.083	0.088	0.117	0.000	0.000	0.000	0.001
	(0.000)	(0.000)	(0.000)	(0.001)	(0.326)	(0.288)	(0.318)	(0.145)	(0.554)	(0.218)	(0.551)	(0.129)
ln(Prov_funds)	0.003				-0.001				-0.006			
	(0.616)				(0.891)				(0.164)			
ln(Prov_style)		0.004				-0.002				-0.010**		
		(0.468)				(0.757)				(0.015)		
Prov_funds_sh			0.017				0.009				-0.331**	
			(0.926)				(0.957)				(0.043)	
Prov_style_sh				0.095				0.053				-0.394***
				(0.544)				(0.770)				(0.003)
Constant	0.621***	0.624***	0.634***	0.632***	0.404***	0.405***	0.399***	0.389***	0.205***	0.210***	0.187***	0.192***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2adj	0.718	0.718	0.718	0.718	0.432	0.432	0.432	0.432	0.200	0.202	0.202	0.205
N	136,555	136,555	136,555	136,555	103,288	103,288	103,288	103,057	112,991	112,991	112,991	112,991

Notes: $Alpha_{FF5F}$ was estimated from three–year moving windows for the Fama–French Five Factor Model. D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by fund. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table A3.3. Table equivalent to Table 4 when ln(Size_avr) controls for funds' size.

	UK equity				Global equity				Mixed High equity			
D_{GPP}	0.116***	0.115***	0.112***	0.110***	0.060***	0.060***	0.055***	0.053***	0.100***	0.094***	0.100***	0.096***
	(0.004)	(0.004)	(0.006)	(0.007)	(0.002)	(0.002)	(0.005)	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)
ln(Age)	-0.025*	-0.025*	-0.025*	-0.026*	-0.000	-0.000	0.001	0.001	-0.008	-0.009	-0.008	-0.009
	(0.074)	(0.070)	(0.071)	(0.058)	(0.989)	(0.988)	(0.960)	(0.951)	(0.277)	(0.221)	(0.259)	(0.218)
Outsourced	0.029	0.029	0.033	0.031	0.022	0.027	0.018	0.016	0.016	0.018	0.016	0.016
	(0.184)	(0.191)	(0.130)	(0.149)	(0.235)	(0.165)	(0.360)	(0.404)	(0.166)	(0.123)	(0.166)	(0.162)
ln(Size_avr)	-0.016***	-0.016***	-0.016***	-0.016***	0.004	0.004	0.003	0.003	0.002	0.003	0.002	0.003
	(0.000)	(0.000)	(0.000)	(0.000)	(0.199)	(0.166)	(0.262)	(0.339)	(0.235)	(0.174)	(0.206)	(0.157)
Prov_spec	0.334***	0.241**	0.315***	0.044	0.093	0.062	0.144	0.179	0.000	0.000	0.000	0.000
	(0.004)	(0.037)	(0.005)	(0.753)	(0.396)	(0.565)	(0.261)	(0.104)	(0.752)	(0.655)	(0.747)	(0.620)
ln(Prov_funds)	0.023***				0.005				-0.003			
	(0.003)				(0.572)				(0.503)			
ln(Prov_style)		0.024***				-0.001				-0.007		
		(0.003)				(0.939)				(0.116)		
Prov_funds_sh			0.893***				0.358				-0.133	
			(0.000)				(0.129)				(0.390)	
Prov_style_sh				0.740***				0.338				-0.188
				(0.000)				(0.183)				(0.115)
Constant	-0.345***	-0.295***	-0.248***	-0.183**	-0.058	-0.030	-0.052	-0.047	0.097*	0.104*	0.085	0.085
	(0.000)	(0.002)	(0.007)	(0.049)	(0.606)	(0.766)	(0.595)	(0.618)	(0.099)	(0.061)	(0.108)	(0.106)
R^2adj	0.456	0.456	0.457	0.457	0.119	0.118	0.120	0.120	0.127	0.128	0.128	0.129
N	64,819	64,819	64,819	64,819	41,002	41,002	41,002	41,002	54,883	54,883	54,883	54,883

Notes: $Alpha_{MOM}$ was estimated from three–year moving windows for the Fama–French Three Factor Model with Momentum. D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by fund. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table A3.4. Table equivalent to Table 4 when $Alpha_{CAPM}$ is the dependent variable and ln(Size) controls for the funds' size.

	UK equity				Global equity				Mixed High equity			
D_{GPP}	0.128***	0.129***	0.125***	0.122**	0.051*	0.050*	0.045*	0.044*	0.129***	0.120***	0.129***	0.125***
	(0.008)	(0.007)	(0.009)	(0.011)	(0.055)	(0.057)	(0.083)	(0.090)	(0.000)	(0.000)	(0.000)	(0.000)
ln(Age)	-0.021	-0.021	-0.022	-0.022	-0.004	-0.004	-0.003	-0.003	-0.009	-0.011	-0.010	-0.011
	(0.124)	(0.125)	(0.122)	(0.118)	(0.750)	(0.749)	(0.814)	(0.825)	(0.181)	(0.126)	(0.163)	(0.119)
Outsourced	0.024	0.024	0.026	0.027	0.038*	0.040*	0.040*	0.035*	0.039***	0.041***	0.039***	0.039***
	(0.299)	(0.306)	(0.241)	(0.227)	(0.067)	(0.056)	(0.061)	(0.100)	(0.001)	(0.000)	(0.001)	(0.001)
ln(Size)	-0.007*	-0.007*	-0.007*	-0.006*	0.009***	0.010***	0.010***	0.009***	0.006***	0.006***	0.006***	0.006***
	(0.054)	(0.054)	(0.052)	(0.060)	(0.003)	(0.003)	(0.003)	(0.005)	(0.002)	(0.001)	(0.001)	(0.001)
Prov_spec	0.388***	0.351***	0.372***	0.306*	0.185*	0.123	0.183*	0.196*	0.000	0.000	0.000	0.000
	(0.003)	(0.009)	(0.005)	(0.098)	(0.075)	(0.214)	(0.093)	(0.051)	(0.807)	(0.692)	(0.805)	(0.658)
ln(Prov_funds)	0.008				0.012				-0.004			
	(0.331)				(0.172)				(0.412)			
ln(Prov_style)		0.009				0.010				-0.009**		
		(0.301)				(0.290)				(0.050)		
Prov_funds_sh			0.310				0.352				-0.165	
			(0.239)				(0.164)				(0.253)	
Prov_style_sh				0.186	-0.694***	-0.658***	-0.652***	-0.647***				-0.236**
				(0.437)	(0.000)	(0.000)	(0.000)	(0.000)				(0.036)
Constant	0.359***	0.376***	0.392***	0.406***				0.493*	0.260***	0.266***	0.244***	0.243***
	(0.001)	(0.000)	(0.000)	(0.000)				(0.080)	(0.000)	(0.000)	(0.000)	(0.000)
R^2adj	0.727	0.727	0.727	0.727	0.385	0.384	0.385	0.385	0.205	0.207	0.205	0.207
N	36,745	36,745	36,745	36,745	37,314	37,314	37,314	37,104	51,281	51,281	51,281	51,281

Notes: $Alpha_{CAPM}$ was estimated from three–year moving windows for the CAPM, D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by fund. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table A3.5. Table equivalent to Table 4 when $Alpha_{CAPM}$ is the dependent variable and ln(Size_avr) controls for the funds' size.

	UK equity				Global equity				Mixed High equity			
D_{GPP}	0.112***	0.112***	0.107***	0.105***	0.038*	0.038*	0.034*	0.032	0.121***	0.116***	0.121***	0.119***
	(0.003)	(0.003)	(0.005)	(0.006)	(0.053)	(0.054)	(0.086)	(0.109)	(0.000)	(0.000)	(0.000)	(0.000)
ln(Age)	-0.025*	-0.025*	-0.026*	-0.027**	-0.016	-0.016	-0.015	-0.015	-0.008	-0.009	-0.009	-0.009
	(0.054)	(0.051)	(0.051)	(0.040)	(0.249)	(0.244)	(0.276)	(0.277)	(0.262)	(0.220)	(0.243)	(0.222)
Outsourced	0.016	0.015	0.020	0.019	0.018	0.020	0.018	0.013	0.024**	0.025**	0.024**	0.024**
	(0.431)	(0.452)	(0.319)	(0.346)	(0.330)	(0.302)	(0.343)	(0.509)	(0.045)	(0.033)	(0.042)	(0.043)
ln(Size_avr)	-0.016***	-0.016***	-0.016***	-0.017***	0.004	0.004	0.004	0.003	0.005**	0.005**	0.005**	0.005***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.200)	(0.196)	(0.215)	(0.297)	(0.015)	(0.010)	(0.012)	(0.009)
Prov_spec	0.318***	0.224**	0.297***	0.043	0.109	0.065	0.128	0.117	0.000	0.000	0.000	0.000
	(0.002)	(0.031)	(0.003)	(0.735)	(0.207)	(0.448)	(0.186)	(0.186)	(0.729)	(0.656)	(0.725)	(0.636)
ln(Prov_funds)	0.023***				0.009				-0.003			
	(0.001)				(0.264)				(0.580)			
ln(Prov_style)		0.025***				0.008				-0.006		
		(0.001)				(0.372)				(0.210)		
Prov_funds_sh			0.875***				0.329				-0.126	
			(0.000)				(0.186)				(0.420)	
Prov_style_sh				0.685***	-0.080	-0.053	-0.050	-0.042				-0.143
				(0.000)	(0.479)	(0.610)	(0.617)	(0.660)				(0.237)
Constant	-0.410***	-0.361***	-0.309***	-0.247***				0.471*	0.010	0.015	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.005)				(0.074)	(0.872)	(0.794)	(0.988)	(0.988)
R^2adj	0.462	0.462	0.463	0.463	0.074	0.074	0.075	0.075	0.063	0.064	0.063	0.064
N	64,819	64,819	64,819	64,819	41,003	41,003	41,003	40,775	54,933	54,933	54,933	54,933

Notes: $Alpha_{CAPM}$ was estimated from three–year moving windows for the CAPM, D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by fund. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table A3.6. Table equivalent to Table 4 when $Alpha_{FF5F}$ is the dependent variable and ln(Size) controls for the funds' size.

	UK equity				Global equity				Mixed High equity			
D_{GPP}	0.116**	0.116**	0.116**	0.112**	0.085***	0.084***	0.077***	0.078***	0.109***	0.099***	0.107***	0.101***
	(0.025)	(0.025)	(0.026)	(0.030)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
ln(Age)	-0.009	-0.009	-0.009	-0.010	0.007	0.007	0.008	0.009	-0.009	-0.010	-0.009	-0.011
	(0.528)	(0.527)	(0.524)	(0.511)	(0.648)	(0.639)	(0.571)	(0.547)	(0.238)	(0.167)	(0.217)	(0.151)
Outsourced	0.029	0.029	0.030	0.031	0.049**	0.057***	0.046**	0.045**	0.031**	0.034***	0.032***	0.033***
	(0.254)	(0.257)	(0.221)	(0.206)	(0.015)	(0.009)	(0.026)	(0.032)	(0.014)	(0.006)	(0.010)	(0.007)
ln(Size)	-0.006*	-0.006*	-0.007*	-0.006*	0.007**	0.007**	0.007**	0.006*	0.002	0.002	0.002	0.002
	(0.085)	(0.086)	(0.078)	(0.090)	(0.025)	(0.019)	(0.032)	(0.051)	(0.431)	(0.296)	(0.374)	(0.246)
Prov_spec	0.335**	0.308**	0.320**	0.259	0.135	0.056	0.176	0.179	0.000	0.000	0.000	0.000
	(0.023)	(0.042)	(0.032)	(0.209)	(0.243)	(0.630)	(0.183)	(0.142)	(0.843)	(0.753)	(0.843)	(0.708)
ln(Prov_funds)	0.006				0.013				-0.000			
	(0.510)				(0.153)				(0.981)			
ln(Prov_style)		0.007				0.006				-0.007		
		(0.500)				(0.624)				(0.172)		
Prov_funds_sh			0.314				0.571**				-0.068	
			(0.255)				(0.018)				(0.650)	
Prov_style_sh				0.176				0.562**				-0.196*
				(0.491)				(0.035)				(0.094)
Constant	0.235**	0.249**	0.263**	0.276**	-0.723***	-0.671***	-0.687***	-0.676***	0.090	0.104*	0.089	0.088
	(0.038)	(0.025)	(0.019)	(0.021)	(0.000)	(0.000)	(0.000)	(0.000)	(0.148)	(0.075)	(0.116)	(0.118)
R^2adj	0.707	0.707	0.707	0.707	0.380	0.379	0.381	0.381	0.233	0.234	0.233	0.234
N	36,745	36,745	36,745	36,745	37,314	37,314	37,314	37,104	51,281	51,281	51,281	51,281

Notes: $Alpha_{FF5F}$ was estimated from three–year moving windows for the Fama–French Five Factor Model, D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by fund. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.

Table A3.7. Table equivalent to Table 4 when $Alpha_{FF5F}$ is the dependent variable and ln(Size_avr) controls for the funds' size.

	UK equity				Global equity				Mixed High equity			
D_{GPP}	0.100***	0.099***	0.096**	0.094**	0.063***	0.063***	0.056***	0.056***	0.100***	0.094***	0.100***	0.095***
	(0.007)	(0.008)	(0.011)	(0.013)	(0.001)	(0.001)	(0.004)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
ln(Age)	-0.015	-0.016	-0.016	-0.017	-0.002	-0.002	-0.000	0.000	-0.004	-0.006	-0.005	-0.006
	(0.254)	(0.246)	(0.246)	(0.210)	(0.913)	(0.911)	(0.984)	(0.998)	(0.578)	(0.486)	(0.556)	(0.474)
Outsourced	0.020	0.019	0.024	0.022	0.023	0.029	0.016	0.015	0.016	0.018	0.016	0.016
	(0.345)	(0.361)	(0.259)	(0.284)	(0.216)	(0.139)	(0.413)	(0.440)	(0.214)	(0.154)	(0.205)	(0.189)
ln(Size_avr)	-0.016***	-0.016***	-0.016***	-0.016***	0.003	0.003	0.002	0.002	0.000	0.001	0.000	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.335)	(0.276)	(0.463)	(0.548)	(0.903)	(0.765)	(0.858)	(0.717)
Prov_spec	0.288***	0.199*	0.268**	0.022	0.009	-0.029	0.087	0.059	0.000	0.000	0.000	0.000
	(0.009)	(0.068)	(0.012)	(0.870)	(0.926)	(0.779)	(0.483)	(0.616)	(0.786)	(0.703)	(0.783)	(0.664)
ln(Prov_funds)	0.022***				0.006				-0.001			
	(0.004)				(0.484)				(0.777)			
ln(Prov_style)		0.023***				-0.001				-0.006		
		(0.003)				(0.954)				(0.211)		
Prov_funds_sh			0.837***				0.510**				-0.077	
			(0.000)				(0.031)				(0.633)	
Prov_style_sh				0.669***				0.448*				-0.171
				(0.000)				(0.083)				(0.171)
Constant	-0.475***	-0.429***	-0.382***	-0.321***	-0.064	-0.030	-0.059	-0.046	0.171***	0.182***	0.165***	0.166***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.575)	(0.774)	(0.547)	(0.630)	(0.005)	(0.001)	(0.002)	(0.002)
R^2adj	0.479	0.479	0.480	0.480	0.134	0.134	0.136	0.136	0.210	0.210	0.210	0.210
N	64,819	64,819	64,819	64,819	41,002	41,002	41,002	40,774	54,933	54,933	54,933	54,933

Notes: $Alpha_{FF5F}$ was estimated from three–year moving windows for the Fama–French Five Factor Model, D_{GPP} is equal to one for GPP funds and zero otherwise. All regressions have yearly fixed effects and are clustered by fund. N is the number of monthly observations. P-values are shows in parenthesis. *** - 1% significance, ** – 5% significance and * – 10% significance.